



1 1.5 Multiply and Dividing Rational Expressions

$$\frac{\cancel{2x}}{x^2 - 1}$$

$$(x + 1)(x - 1) = 0$$

$$\left. \begin{array}{l} x^2 + x - 12 \\ (x + 4)(x - 3) \end{array} \right\}$$

22 13
 11 18
 30 23
 19
 15

(15) $\frac{7x}{12x+x^2}$
 $\frac{7\cancel{x}}{\cancel{x}(12+x)}$
 $\frac{7}{12+x}$

To Multiply Rational Expressions:

- 1. Factor the numerator and denominator completely**
- 2. Write the product of the numerators over the product of the denominators, do not multiply at this point!**
- 3. Divide out the common factors and multiply**
- 4. Leave the numerator and denominator in factored form.**

1. 31

$$\frac{\cancel{93} \cdot \cancel{34n}}{21n \cdot \cancel{51n}} = \frac{17}{17}$$

2.

$$\frac{\cancel{6(r+2)} \cdot \cancel{4r}}{\cancel{20} \cdot \cancel{6(r+2)}} = \frac{r}{5}$$

$$\frac{187}{357n} = \frac{62}{21n} \quad \frac{r}{5}$$

$$\frac{62}{21n}$$

$$\frac{r}{5}$$

3.

$$\frac{2(p+6)}{4} \cdot \frac{p-3}{2(p-3)}$$

4.

$$\frac{21x^2 - 21x}{18x^2 - 18x} \cdot \frac{6x}{6x^2}$$

$$\frac{\cancel{7} \cancel{2} \cancel{x} (\cancel{x-1})}{\cancel{1} \cancel{8} \cancel{x} (\cancel{x-1})} \cdot \frac{\cancel{6} \cdot \cancel{x}}{\cancel{6} \cdot \cancel{x^2}}$$

3

$\frac{7}{6x}$



$$\frac{7}{6x}$$

5.

$$\frac{m+1}{3m-15} \cdot \frac{8m-80}{m^2-9m-10}$$

6.

$$\frac{8v-56}{8v+48} \cdot \frac{v^2+9v+18}{8v^2+24v}$$

$$\frac{\cancel{m+1}}{3(m-5)} \cdot \frac{8(\cancel{m-10})}{(\cancel{m-10})(\cancel{m+1})}$$

$$3(m-5)$$

$$\frac{8}{3(m-5)}$$



To DIVIDE Rational Expressions:

7.

$$\frac{10n}{9} \div \frac{13n^2}{16}$$

8.

$$\frac{2}{7} \div \frac{18}{8x^2}$$



9.

$$\frac{7a^2}{7a^3 + 56a^2} \div \frac{2}{a^2 + 7a - 8}$$

10.

$$\frac{x^2 + 10x + 16}{x^2 + 6x + 8} \div \frac{1}{x + 4}$$

$$\frac{a-1}{2}$$



11.

$$\frac{b^2 - 2b - 15}{8b + 20} \div \frac{2}{4b + 10}$$

12.

$$\frac{6p + 27}{18p^2 + 36p} \div \frac{16p + 72}{2p + 4}$$

